

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
Engineering Division  
Honolulu, Hawaii 96813

March 10, 2011

Board of Land and Natural Resources  
State of Hawaii  
Honolulu, Hawaii

**APPLICATION FOR A DLNR DAM SAFETY CONSTRUCTION/ALTERATION PERMIT  
PERMIT NO. 50 – HAWI NO. 3 RESERVOIR (HA-0050)  
DAM ALTERATION/REMOVAL, HAWI, HAWAII**

The Engineering Division hereby submits an application for your approval and authorization for the Chairperson and Department to stipulate conditions and issue a Dam Safety Construction/Alteration Permit for the subject application, "Alteration and Removal of the HAWI NO. 3 RESERVOIR", pursuant to Chapter 179D Hawaii Revised Statutes and current Administrative Rules.

**APPLICANT:**

Mr. Ernest U.W. Lau  
Public Works Administrator  
State of Hawaii  
Department of Accounting and General Services  
1151 Punchbowl Street, Room 426  
Honolulu, HI 96813

**CO-LANDOWNER:**

Russell Y. Tsuji, Administrator  
State of Hawaii  
Department of Land and Natural Resources  
Land Division  
1151 Punchbowl Street, Room 220  
Honolulu, HI 96813

**CO-LANDOWNER:**

Kaeo Duarte  
Kamehameha Schools  
567 S. King Street, Suite 200  
Honolulu HI, 96813

**SUMMARY OF REQUEST:**

Application for a Dam Safety Construction/Alteration Permit for the alteration and removal of the Hawi No. 3 Reservoir, Hawi, Hawaii, See Exhibit 1.

**LOCATION:** Hawi, Hawaii, Hawaii, TMK: (3) 5-5-003: 001, 004, & 005. See Exhibit 2.

**BACKGROUND:**

Hawi 3 Reservoir was constructed around 1969 as a water source to irrigate sugar cane. Phase I inspection conducted in 2007 identified a number of deficiencies including some believed to be caused by the October, 2006 earthquakes. An application for the repair of the Hawi No. 3 Reservoir was filed on September 28, 2010 by the State of Hawaii, Department of Accounting and General

Services (DAGS), on behalf of the co-owners, State of Hawaii, Department of Land and Natural Resources (DLNR), and Kamehameha Schools (KS). The proposed work includes modification of the spillway, reconstruction of an outlet channel and spreader apron, installation of an outlet valve and structure at the dam, repair of inflow feeder channel and clearing and grubbing of disturbed areas. Trees and undesirable vegetation will be removed from the embankment and appropriate erosion control will be established.

**DESCRIPTION:**

The Hawi No. 3 Reservoir Dam is approximately 26 ft. high, 1,600 ft. long. The surface area of the reservoir at the dam crest is approximately 6.5 acres. The reservoir impounds a maximum of 130 ac-ft. The existing outlet works consist of a concrete intake structure and a 24-inch ductile iron pipe with a control valve downstream of the embankment. There is an unlined spillway with a base width of approximately 6 feet at the bottom, 20 feet wide at the top, and 7 feet deep.

The owner is proposing to reconstruct the spillway by lowering the spillway approximately 14 feet. The side slopes of the outlet channel will be 3H:1V and will be lined with Bermuda grass lining. Additional improvements will include:

- a) Reconstructing the upstream and downstream embankment slopes to 3H:1V;
- b) Reconstructing the intake structure and adding a sluice gate at the intake structure;
- c) Adding a staff gage to monitor the storage elevation; and
- d) Improvement of site and access roadway grading, subgrading and drainage.

The completion of this repair will result in lowering the effective height and volume capacity of the dam such that it will fall below the requirements that satisfy the definition of a dam, pursuant to Chapter 179D Hawaii Revised Statutes. See Exhibit 3

**CHAPTER 343 – ENVIRONMENTAL ASSESSMENT:**

In accordance with the division of Land Management's Environmental Impact Statement Exemption List, approved by the Environmental Council dated April 28, 1986, the subject request is considered exempt from the preparation of an environmental assessment pursuant to Exemption class No. 1 that states: "Operations, repairs or maintenance of existing structures, facilities, equipment or topographical features, involving negligible or no expansion or change of use beyond that previously existing." See Exhibit 4

**REMARKS:**

The applicant (DAGS) and their client, DLNR and the applicant's consultant, Gannett Fleming, Inc, have completed a basis of design, plans and specification and requests for the approval of a dam safety construction/alteration permit. The Department and its engineering consultant, Kleinfelder, Inc. have reviewed the documents and concluded that it is sufficient for its intended purposes. Staff recommends approval of this permit application. See Exhibit 5.


**RECOMMENDATION:**

That the Board:

1. Authorize the approval and issuance of the Dam Safety Construction/Alteration Permit for this project; and

2. Direct the Chairperson to issue a dam safety permit for the alteration and removal of the Hawi No. 3 Reservoir (DLNR Dam Safety Construction/Alteration Permit No. 50) subject to such other terms and conditions as may be prescribed by the Chairperson to best serve the interests of the State.
3. Authorize the Department to oversee performance of the permitted work and take appropriate action including but not limited to issuance of fines and /or revocation of the permit, if necessary.
4. Authorize the Department to remove this dam from dam safety regulatory oversight and the requirements of Chapter 179D, Hawaii Revised Statutes, upon satisfactory completion of the construction project.

Respectfully submitted,



CARTY CHANG  
Chief Engineer

APPROVED FOR SUBMITTAL:



WILLIAM J. AILA, JR.  
Interim Chairperson

- Exhibit(s):
- 1 Owner Permit Application
  - 2 Tax Map Key (TMK) map
  - 3 Construction Drawing pages
  - 4 Environmental assessment exemption documents
  - 5 Kleinfelder, Inc. correspondence on approval of plans (to be provided at Board meeting)
  - 6 General permit conditions (to be provided at Board meeting)

Applicant: Ernest Y.W. Lau Date of Application: June 14, 2010  
Contact Name: Ernest Y.W. Lau Firm / Company: Department of Accounting and General Services, State of Hawaii

**Telephone: 808-586-0526      Fax: 808-586-0521      Email: [ernest.y.lau@hawaii.gov](mailto:ernest.y.lau@hawaii.gov)**

(please check)

- x**

## Geotechnical Engineering Report

**X**

**DAM OR RESERVOIR LOCATION:** 2 miles southwest of the Town of Hawi on the north side of the Island of Hawaii (Lat/Long - -155.8488/20.2296)

**Tax Map Key: (3) 5-5-003: 001, 004 & 005**

State Land Use District:   x   Agriculture             Urban             Rural             Conservation

The proposed work includes modification of the spillway, reconstruction of an outlet channel and spreader apron, installation of outlet valve and structure at the dam, repair of inflow feeder channel and clearing and grubbing of disturbed areas.

Rev. DAM PERMIT APPLICATION-20080201, 8/13/2008, 11:11 AM, 2 of 4

**TECHNICAL INFORMATION:**

DLNR-Dam Safety-Sheet 2

1. Drainage Area 0.023 sq. miles or 14.7 acres
2. Classification of Dam Small
3. Type of Structure Earth fill embankment
4. Elevation-Area-Capacity Data:
- |                    | Elevation     | Surface Area<br>(acres) | Total Storage<br>Volume (acre-feet) |
|--------------------|---------------|-------------------------|-------------------------------------|
| Natural Streambed  | <u>N/A</u>    | <u>N/A</u>              | <u>N/A</u>                          |
| Primary Spillway   | <u>880.0'</u> | <u>4</u>                | <u>25.2</u>                         |
| Secondary Spillway | <u>N/A</u>    | <u>N/A</u>              | <u>N/A</u>                          |
| Top of Dam         | <u>900.0'</u> | <u>7.9</u>              | <u>146.8</u>                        |
| Design Water Level | <u>880.0'</u> | <u>4</u>                | <u>25.2</u>                         |
| Invert of Drain    | <u>870.0'</u> | <u>0</u>                | <u>0</u>                            |
5. Spillway Details (Type, Dimensions, Material)  
Primary: Bare soil trapezoidal side channel  
Secondary: N/A
6. Purpose of Structure Irrigation supply  
(water supply, irrigation, recreation, real estate development, etc.)
7. Attach rainfall and stream flow records, and flood-flow records and estimates (as accurately as may be readily obtained)  
No rainfall and stream flow records are available. Design Report includes inflow hydrograph.

**ADDITIONAL INFORMATION**

1. Primary Owner Contact (if different from applicant) Morris M. Atta, Acting Administrator  
Owner Company or Entity: Land Division, Dept. of Land and Natural Resources, State of Hawaii  
Mailing Address 1151 Punchbowl Street, Ste. 220, Honolulu, Hawaii 96813  
Telephone: (808) 587-0422 Fax: (808) 587-0455 Email: morris.m.atta@hawaii.gov
2. Registered Hawaii Professional Engineer who prepared the plan Dean B. Durkee, Ph.D., P.E.  
Mailing Address 4722 N 24th Street, Suite 250, Phoenix, AZ 85016  
Registration No. 12616-C  
Telephone: (602) 553-8817 Fax: (602) 553-8816 Email: ddurkee@gfnet.com  
x 8228
3. Registered Professional Engineer to be responsible for inspection during construction Dean B. Durkee, Ph.D., P.E.
4. Contractor (If known) Willocks Construction Corporation  
Mailing Address 16-209 Melekauiwa Place  
Telephone: (808) 982-9099 Fax: (808) 982-6447 Email: paulw@willockshawaii.com
5. List all other permits applications submitted to other governmental agencies:  
Grading and Stockpiling Permits - County  
Permits not needed - USACE, SCAP, Section 401, Section 404
6. Anticipated effect of proposed structure on natural environment: No impacts or changes to the natural environment are anticipated from the results of the proposed dam improvements.

7. List all other parties that have ownership or other interest on the parcels where the dam and reservoir are located and identify their interest in the property. The Owners herein listed below concur with the work proposed within this application by the applicant and by his/her signing hereto, the owner of the land extends to the Board of Land and Natural Resources, and its designated representatives, a right-of-entry onto the project site to conduct any investigations or inspections required in compliance with the provisions of Chapter 13-190, Hawaii Administrative Rules. (Submit additional copies of this sheet should there be more owners)

  
 (Signature of Owner) Chairperson

1151 Punchbowl St., #220, Honolulu, HI 96813; Owner  
 (Address / Interest in Dam or Reservoir)

*see next page*  
 (Signature of Owner) Land Asset Mgr.

78-6831 Alii Dr., #235, Kailua-Kona, HI 96740; Owner  
 (Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
 (Signature of Owner)

\_\_\_\_\_  
 (Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
 (Signature of Owner)

\_\_\_\_\_  
 (Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
 (Signature of Owner)

\_\_\_\_\_  
 (Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
 (Signature of Owner)

\_\_\_\_\_  
 (Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
 (Signature of Owner)

\_\_\_\_\_  
 (Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
 (Signature of Owner)

\_\_\_\_\_  
 (Address / Interest in Dam or Reservoir)

I, Ernest Y.W. Lau, the applicant, hereby certify that the information herein is true and factual to the best of my knowledge. Signing below indicates that the applicant understands that, if the permit requested is granted by the Board of Land and Natural Resources, the proposed work is to be initiated and completed within two (2) years of the approval date, unless specifically permitted in the approved permit terms and conditions.

  
 (Signature of Applicant & Title)  
 Public Works Administrator

Date: 9/23/10

Department of Accounting and General Services

DLNR-Dam Safety-Sheet 3

7. List all other parties that have ownership or other interest on the parcels where the dam and reservoir are located and identify their interest in the property. The Owners herein listed below concur with the work proposed within this application by the applicant and by his/her signing hereto, the owner of the land extends to the Board of Land and Natural Resources, and its designated representatives, a right-of-entry onto the project site to conduct any investigations or inspections required in compliance with the provisions of Chapter 13-190, Hawaii Administrative Rules. (Submit additional copies of this sheet should there be more owners)

See previous page  
(Signature of Owner) Chairperson

1151 Punchbowl St., #220, Honolulu, HI 96813; Owner  
(Address / Interest in Dam or Reservoir)

[Signature]  
(Signature of Owner) Land Asset Mgr.

78-6831 Alii Dr., #235, Kailua-Kona, HI 96740; Owner  
(Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
(Signature of Owner)

\_\_\_\_\_  
(Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
(Signature of Owner)

\_\_\_\_\_  
(Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
(Signature of Owner)

\_\_\_\_\_  
(Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
(Signature of Owner)

\_\_\_\_\_  
(Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
(Signature of Owner)

\_\_\_\_\_  
(Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
(Signature of Owner)

\_\_\_\_\_  
(Address / Interest in Dam or Reservoir)

I, Ernest Y.W. Lau, the applicant, hereby certify that the information herein is true and factual to the best of my knowledge. Signing below indicates that the applicant understands that, if the permit requested is granted by the Board of Land and Natural Resources, the proposed work is to be initiated and completed within two (2) years of the approval date, unless specifically permitted in the approved permit terms and conditions.

\_\_\_\_\_  
(Signature of Applicant & Title)  
Public Works Administrator

Date: \_\_\_\_\_

Department of Accounting and General Services

10 SEP 28 PM 10:05 ENGINEERING

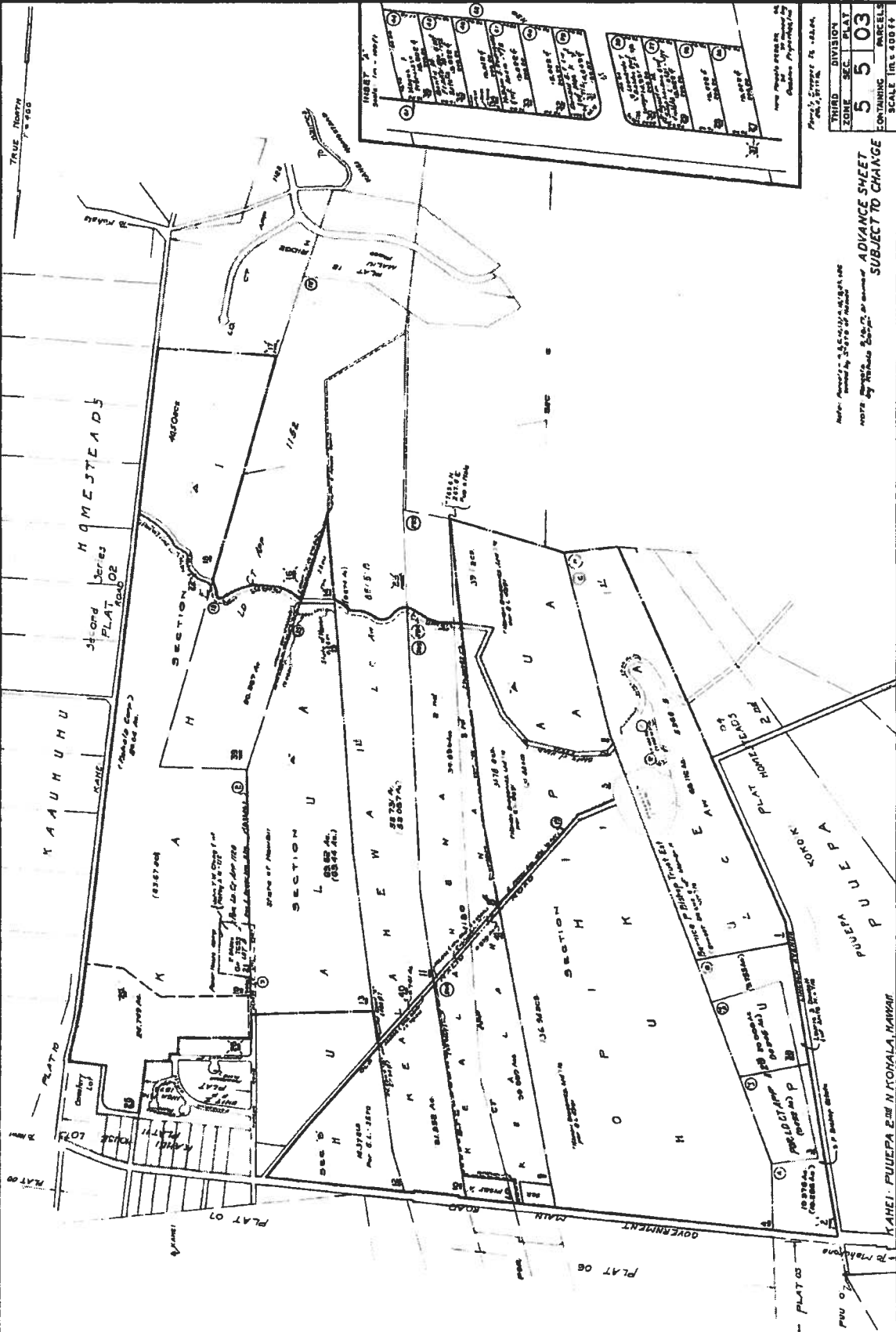
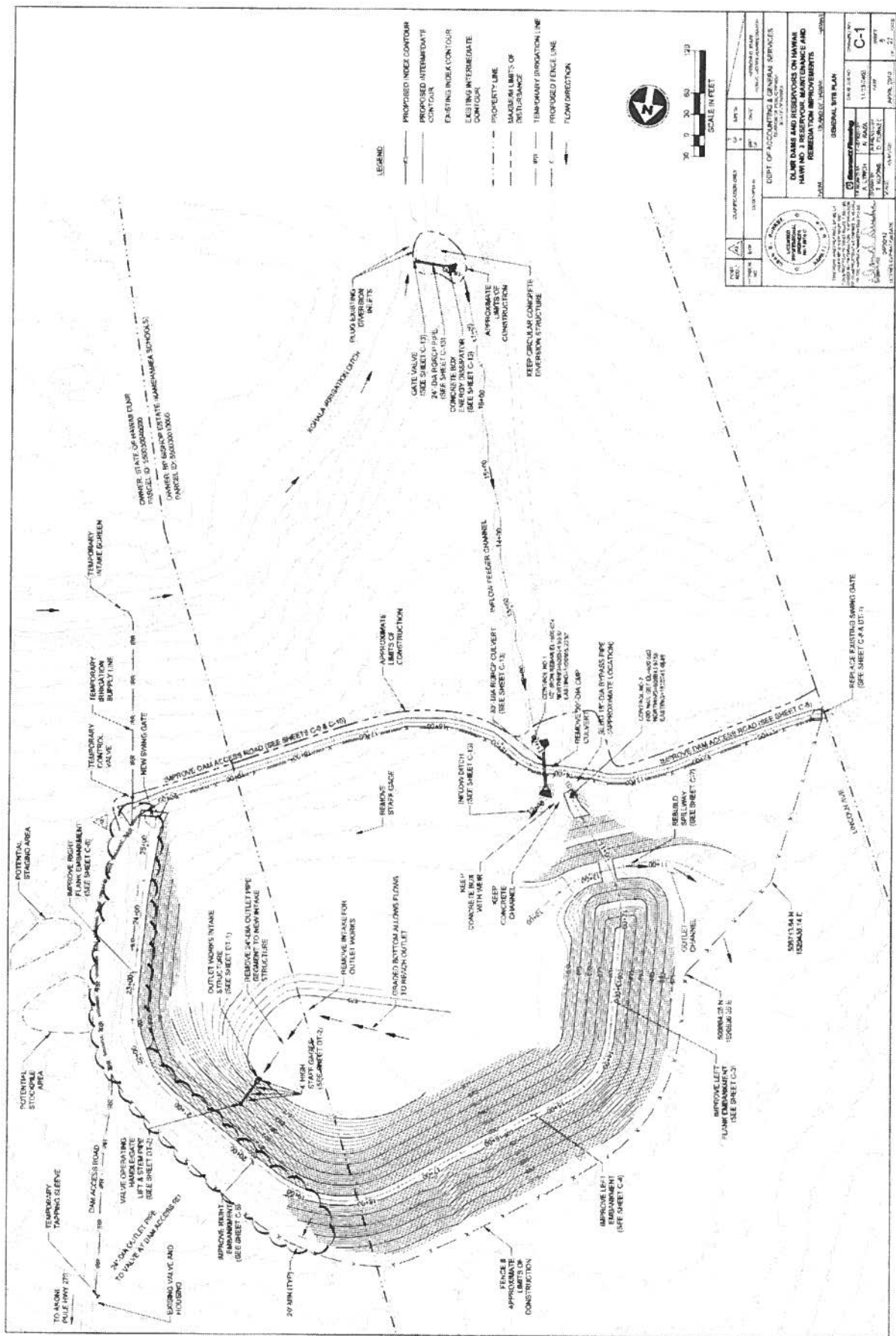
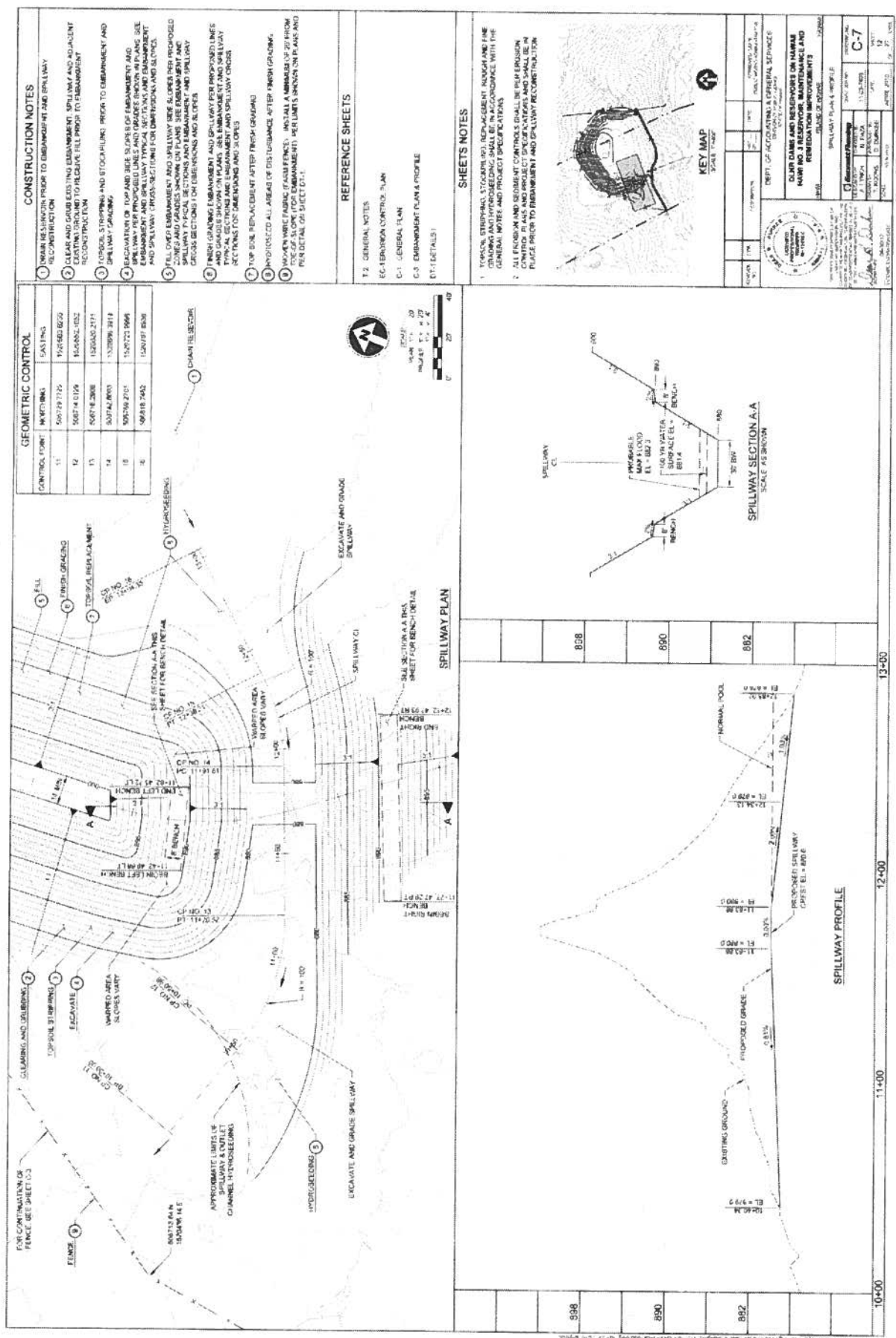


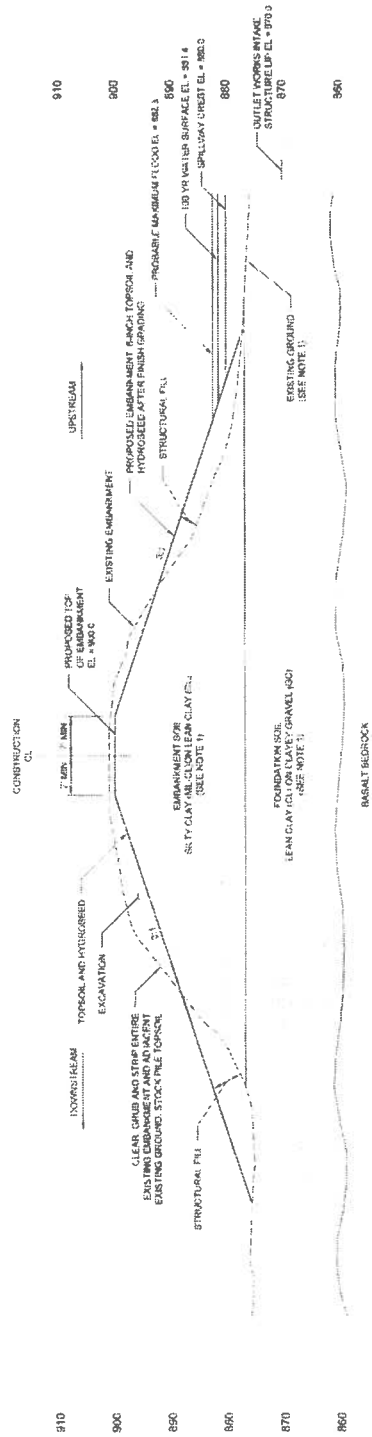
Exhibit 2





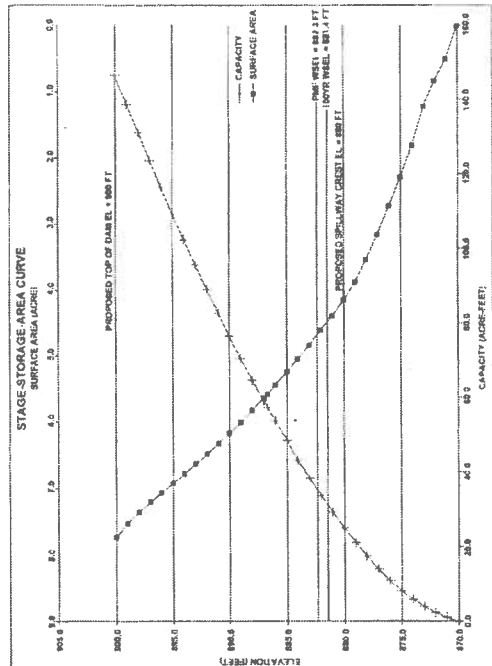






- NOTES:**
1. FOR LAYER LAPPING ARE INTERPOLATED FROM EMBANKMENT AND MAY VARY ALONG THE EMBANKMENT DUE TO CHANGES IN EMBANKMENT HEIGHT, GEOLOGICAL AND TOPOGRAPHIC FEATURES. THE CONFIGURATION OF THE EXISTING GROUND MAY VARY DEPENDING ON THE LOCATION ALONG THE EMBANKMENT.
  2. LINES AND GRADES SHOWN ON THIS TYPICAL EMBANKMENT SECTION ARE MINIMUM REQUIREMENTS. REFER TO EMBANKMENT CROSS SECTION SHEETS C-14 THROUGH C-17 FOR DEMARCATION OF DESIGN LINES AND GRADES FOR REINFORCED EMBANKMENT.
  3. IF ADJUSTMENTS OF THE DESIGN TEMPERATURES SHOWN ON SHEETS C-14 THROUGH C-17 ARE PROPOSED TO FACILITATE CONSTRUCTION, CONTRACTOR SHALL PREPARE CUT SHEETS FOR APPROVAL BY THE ENGINEER. IF ANY ADJUSTMENTS ARE MADE, THE EMBANKMENT SHALL BE CONSTRUCTED TO THE SAME STANDARDS AS THE EMBANKMENT. NO FINISHED SLOPE SHALL BE STEEPER THAN 1:1 ON 1V AND NO ADDITIONAL PAYMENT WILL BE APPROVED FOR ANY PAY ITEM.

**BANKING TYPICAL SECTION**  
SCALE: 1"=10'



**REFERENCE SHEETS**

- C-1 GENERAL SITE PLAN
- C-2 EMBANKMENT PLAN & PROFILE I
- C-3 EMBANKMENT PLAN & PROFILE II
- C-4 EMBANKMENT PLAN & PROFILE III
- C-5 EMBANKMENT PLAN & PROFILE IV
- C-6 EMBANKMENT PLAN & PROFILE V
- C-7 SPILLWAY PLAN & PROFILE
- D-1 DETAILS

DATE: 04/27/17	PROJECT: 14-0001	SHEET: 1	TOTAL: 3
<b>DESIGNER:</b> [Signature] <b>CHECKED BY:</b> [Signature] <b>APPROVED BY:</b> [Signature]			
<b>PROJECT NAME:</b> KAWAII RESERVOIR MAINTENANCE AND IMPROVEMENTS <b>PROJECT NO.:</b> 14-0001		<b>DATE OF SUBMITTAL:</b> 04/27/17	
<b>DESIGNER:</b> [Signature] <b>CHECKED BY:</b> [Signature] <b>APPROVED BY:</b> [Signature]		<b>DATE OF SUBMITTAL:</b> 04/27/17	



**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION**

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

September 21, 2010

**EXEMPTION NOTIFICATION**

regarding the preparation of an environmental assessment pursuant to Chapter 343, HRS and Chapter 11-200, HAR

Project Title:	DLNR Dams and Reservoirs on Hawaii Maintenance and Remediation Improvements
Project / Reference No.:	D.A.G.S. Job No. 11-23-7408
Project Location:	Hawi No. 3 Dam and Reservoir (State ID #HA-0050) Hawi, Hawaii County, Hawaii TMK Nos.: (3) 5-5-003:001, 004 & 005
Project Description:	Design and repair of the deficiencies of this reservoir – upstream / downstream slopes, outlet works and inflow feeder channel; the storage capacity will be modified by reducing the spillway crest elevation and an improved spillway - to insure public safety.
Chapter 343 Trigger(s):	Use of State funds and on State lands
Exemption Class No. and Description:	1  In accordance with the Division of Land Management's Environmental Impact Statement Exemption List, approved by the Environmental Council and dated April 28, 1986, the subject project is considered to be exempt from the preparation of an environmental assessment pursuant to Exemption Class No. 1, that states: "Operations, repairs or maintenance of existing structures, facilities, equipment or topographical features, involving negligible or no expansion or change of use beyond that previously existing."  The maintenance and improvement project consists of reduction of the spillway crest elevation to 880 feet that will

result in reducing storage volume to approximately 7.4 million gallons (approximately 22.8 ac-ft). This modification will provide sufficient water to meet the immediate needs of the lessee for irrigation and water storage, while at the same time reducing the risk of dam failure. Additional improvements include reconstruction of the spillway and outlet channel, improvements to the outlet works, replacement of pipe culvert, and flattening embankment slopes to a ratio of 3:1. Appurtenant changes include grading and repair of the inflow feeder channel from the irrigation ditch and access road, and installation of a staff gage.

The maintenance and improvement project is a single action and not a component or incremental action of a larger total undertaking. There is no cumulative impact as this project will serve to ensure that the Dam will continue to function safely as it has been historically, and it will also be in compliance with the Hawaii Dam Safety Act of 2007. Upon repair, the Dam will serve to maintain a safe environment and simultaneously continue to provide an effective water supply.

**Exempt Item and Description  
from Agency Exemption List:**

4 and 5

4) Repair, maintenance and renovation of existing structures on leases state lands. 5) Routine and emergency repair and restoration of existing structures and facilities on State lands involving negligible or no expansion or change or use beyond that previously existing.

**Recommendation:**

It is recommended that the Board find that this request will probably have minimal or no significant effect on the environment and is presumed to be exempt from the preparation of an environmental assessment.